

SCIENCE & GOVERNMENT REPORT

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January 15, 1976

Congress Creates High-Powered Science-Policy Group

While the Ford Administration is preparing for the re-establishment of a White House science advisory organization (SGR Vol. V, No. 22), the Democratically controlled Congressional Office of Technology Assessment (OTA) has quietly assembled and generously bankrolled a blueribbon study group that looks like a presidential science office in exile.

Among the key figures in the new creation—for which there has been no public announcement—are Ellis Mottur, staff director, who has long been Senator Kennedy's chief specialist on science-policy matters; MIT President Jerome Wiesner, who served as President Kennedy's science adviser; Brown University President Donald Hornig, who was President Johnson's science adviser; Edward Wenk, of the University of Washington, a Wiesner associate who was an ocean policy planner under Johnson, and Caltech President Harold Brown, Johnson's secretary of the Air Force, former chief of research at the Pentagon, and recently resigned chairman of the OTA Advisory Council.

All this, plus other talent, is being focused on what is formally identified as an OTA "assessment on research and development policies," which was planned June 23 at MIT by an *ad hoc* panel on R & D Policies and Priorities. Who inspired whom to do what is not altogether clear from various exchanges of correspondence concerning the meeting. But for the record, it appears that the Advisory Council asked Wiesner, who is a Council member, to hold the get-together, and out of the meeting came a series of recommendations for the study (see Page 2 for panel members). Since OTA is supposed to be responsive to the research needs of the Congress, the correspondence refers to concern about R&D policies among such influential legislative bodies as the Congressional Budget Office, the budget committees of both houses, and various committees with jurisdictions over science and technology.

On the basis of the *ad hoc* group's recommendations, the OTA Board gave its approval October 30 to a three-part study that is being organized as follows:

Area 1—Health of the Scientific and Technical Enterprise. To be directed by Harvey Brooks, Harvard Professor of Technology and Public Policy, the study will examine "Various modes of coupling or decoupling scientific research and education," which is another way of stating interest in whether the US should evolve to the European pattern of conducting a major propor-

tion of basic research in non-academic institutions.

Area 2—Application of Science and Technology. Directed by Lewis Branscomb, IBM Vice President and Chief Scientist, the study will compare international levels of R&D support, identify government barriers to innovation, study scientific and technical responses to national problems, and examine problems related to civilian "spinoffs" from defense and space research.

Area 3—The Decision Making Process in the Areas of R & D Policies and Priorities. Directed by Wenk, this part will range over the organizational arrangements for making R & D decisions, and will include studies of the much-studied peer review system and techniques for evaluating the economic impact of R & D. Hornig and Edward E. David Jr., Nixon's science adviser, have agreed to take part.

The OTA Board voted to commit a total of \$925,000 to the studies, with \$125,000 being made available for

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In Brief

The State Department science job that Dixy Lee Ray indignantly bailed out of last year is the object of a conflict between the Department and the White House. Aides of running-scared Ford want to pick up election points by filling it with an unqualified but politically valuable clod; State's candidate is a career foreign service officer. Meanwhile, the visibility and the influence of the office have shrunk to zero.

Battelle's Columbus Laboratories' respected annual forecast of R&D spending puts the US 1976 total at \$38.1 billion, a one-year jump of 11.1 per cent. Battelle says inflation will consume about half of the increase, but "the rate of growth in current-dollar R&D activity, nevertheless, seems to have returned to the high rates that characterized the pre-1968 situation."

Newest item of interest for R&D statistics collectors: "Patterns of Resources Devoted to Research and Experimental Development," covering 1963-1971 in the 20 member countries of the Organization for Economic Research and Development. (113 pages, \$4.50, OECD, 1750 Penn. Ave. N.W., Washington, DC 20006).

Most Mysterious Sentence of the Week: "On 6 June last year, Californians will commit a psephological act of more than routine interest." (Science, 9 January 1976, page 48).

Republican v. Democratic Attitudes: The Differences

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the current fiscal year; \$125,000 for the period from next July 1 to September 30, and \$625,000 for the fiscal year that begins next October 1 under the federal government's reorganized budget calendar.

According to OTA sources, the study was conceived long before the Administration made any move to set up its own advisory groups in anticipation of Congressional approval for the Office of Science and Technology Policy (see page 7). The chronology of events indicates that is so. But from the cast of characters involved in the OTA action, it may be inferred that Kennedy was the prime mover in the creation of the study, and he has been thumping hard on the theme that science policy affairs have been unraveling because of Administration neglect. OTA thus did not set out to establish a competing organization, but it appears that at Kennedy's urging, it did move into what it conceived of as a policy-area vacuum.

Of further interest is the fact that there is very little duplication of membership between the OTA and White House groups. Both are billed as non-partisan bodies pursuing the national interest in science-related matters. But the White House groups are headed by two well-established Republicans, William O. Baker, president of Bell Labs, and Simon Ramo, vice chairman of the board of TRW. Wiesner, long identified as a serious adviser to the Democratic party, has been designated as the "lead person" for the OTA study.

IBM's Branscomb and Edward David serve on both the OTA and the White House studies. Arthur Bueche, GE vice president for research and development, served with the OTA *ad hoc* study and is a member of one of the White House advisory groups. Otherwise, there is no overlap of membership, though that may change since all the study groups say they plan to take on additional members.

Anyone questioning for differences between Democratic and Republican preferences in science, technology, and related matters will generally find slim pickings. The assorted experts referred to above are mainly in the employ of big organizations that are heavily dependent upon the federal government for money, whether they're from MIT or TRW. And they all share a common ground in their desire for more of that money.

But, in fact, there are some differences. Wiesner and many of his associates regard arms control as a high-priority concern for research and development planners, while the Baker-Ramo combine has little, if anything, to say publicly on the subject. Furthermore, for whatever it may be worth—possible not much—the Administration prefers to look toward industry for its scientific and technical advice, while the OTA group

leans heavily toward academic origins. The distinction between the two has been increasingly blurred in recent years, but, if only slightly, the academic world tends to be less concerned with profit considerations on major current issues such as environmental purity and consumer safety.

Finally, on the issue of public participation in scientific and technical decision-making, there is no abundance of clarity in any camp. But Kennedy has emerged as a strong supporter of the thesis that public fears of science and technology are closely linked to public exclusion from decision-making. In this regard, it is noteworthy that Albert Fritsch, co-director of the Center for Science in the Public Interest—a vigorous and influential public-interest group—was a member of the *ad hoc* committee that planned the OTA studies. Neither he nor anyone of similar connections is among the members of the White House advisory groups. —DSG

The following took part June 23 at MIT in the ad hoc meeting that produced recommendations for the Office of Technology Assessment study on R&D Policies and Priorities:

Jerome B. Wiesner, Chairman;
President, MIT
Richard B. Bernstein,
Department of Chemistry,
University of Texas
Lewis M. Branscomb,
Vice President and Chief Scientist, IBM
Harvey Brooks,
Professor of Technology and Public Policy,
Harvard
Harold Brown,
President, California Institute of Technology
Arthur Bueche,
Vice President, Research and Development, GE
Robert A. Charpie,
President, Cabot Corporation
Edward Denison
Senior Fellow, Brookings Institution
Albert J. Fritsch
Co-Director, Center for Science in Public Interest
Leo Goldberg
Director, Kitt Peak National Observatory
Max Milner,
Coordinator, NSF/MIT
Protein Resources Study
Frederick C. Robbins,
Dean of Medical School,
Case Western Reserve
William Sewell,
Professor of Sociology,
University of Wisconsin
Herbert A. Simon,
Professor of Psychology & Computer Sciences
Carnegie-Mellon University
Harland Wood,
Medical School,
Case Western Reserve

GAO Study Adds Fuel to Peer-Review Dispute

Arguments over the National Science Foundation's grant review procedures shows little sign of abating.

The latest development is a study by the General Accounting Office (GAO), which reports that most scientists who have sought grants from NSF's program of Research Applied to National Needs (RANN) are unhappy with some aspects of the peer review process used to evaluate their proposals, and would like to see some "major changes" instituted.

The GAO report, the product of an investigation of the RANN program which was requested by Senator Kennedy, provides the first direct sampling of scientists' views on the peer review process since NSF came under Congressional attack last spring. Though the report deals only with the RANN program, which is one of NSF's largest and most controversial endeavors, its findings are likely to be valid for other NSF divisions.

A more extensive survey of scientists views on NSF's granting mechanisms, consisting of 4500 questionnaires sent to NSF grant applicants and reviewers, is now being analyzed by the House Committee on Science and Technology (SGR Vol. V, No. 21); the results should be available in the next few weeks.

GAO's findings are based on responses to questionnaires mailed to some 2000 scientists who applied for RANN grants up to June 30, 1974. About half the sample were successful in their applications and the rest had their proposals turned down by NSF.

Not surprisingly, GAO found more dissatisfaction with the peer review process among unsuccessful applicants than among those who received funding. But the survey turned up a surprising level of unhappiness with the system among both groups, and it suggests that although recent changes in peer-review introduced by the National Science Board (SGR Vol. V, No. 16) will help mute some of the criticisms, they will by no means satisfy everybody.

In general, concern was expressed about lack of feedback between grant applicants and NSF program managers handling their proposals; the lack of controls to ensure that reviewers are impartial and that their reports are acceptable, and the length of time it takes to reach a decision on a proposal.

Asked whether they found NSF officials responsive to informal inquiries about their grant proposals, 68.2 per

cent of successful applicants said they found the officials "very responsive", but only 28.2 per cent of the unsuccessful applicants shared that opinion. Similarly, 67.7 per cent of the successful applicants said they found NSF officials at least "generally helpful" in answering their informal inquiries, while 42.2 per cent of unsuccessful applicants found NSF officials to be "little or no help."

A majority of both groups believes that more than one NSF project manager should be involved in a decision to turn down a grant application. (About 75 per cent of NSF program managers do, in fact, seek assistance from other NSF officials in evaluating preliminary proposals).

A large majority of both successful and unsuccessful applicants suggested that there should at least be periodic checks on the performance of NSF reviewers. Less than 25 per cent of the total believed that a program manager should have sole responsibility for judging the performance of reviewers.

As for the question of more openness in the peer review system, less than half the respondents said that they would like to see verbatim copies of each reviewer's comments on their grant proposals. Nearly all said, however, that they would like to receive at least some of the reviewers' comments, on request. Beginning on January 1, NSF has instituted a policy of providing verbatim, but unsigned, texts of reviewers comments to grant applicants.

The GAO survey did not tackle the question of whether or not the names of reviewers should be revealed to grant applicants—a question which has developed into a central issue among some of NSF's more outspoken Congressional critics—but that is being addressed in the more extensive survey to scientists' views on peer review.

SGR Publication Schedule

Science & Government Report has revised its annual publication schedule from 22 to 21 issues. SGR will be published on the 1st and 15th of each month, except for single issues in January, July and August. Subscriptions that were entered for 22 issues will, of course, be fulfilled at that figure. The change reduces pressure for a price increase by eliminating the January 1 issue, for which we have always had difficulty finding news.

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New President States Rousing Plans for AAAS

To foresee the outcome of a recent and rare intrusion upon the somnolence of the American Association for the Advancement of Science, it is useful to recall that AAAS presidents usually are prestige-laden elder statesmen who, while holding fulltime employment elsewhere, occupy the office for just one year.

There is, of course, no remuneration for this honor, but, on the other hand, there are no definable duties apart from delivering a presidential address to an emptying ballroom at the annual convention and attending quarterly board meetings, at which all substantive decisions are almost invariably postponed to the next meeting. Meanwhile, the day-to-day affairs of the 128-year-old organization are looked after by paid life termers who have seen many AAAS presidents come and go. The organization lives with the illusion that the membership is attracted by a vast inventory of AAAS activities, such as textbook development, science fairs, and so forth. But the reality of the matter, as all know, is that the prestigious weekly *Science* is the AAAS' only viable property; *Science* could easily exist without the AAAS; the reverse is not true.

With that bit of organizational *realpolitik* set before us, we can note the characteristically blustering arrival January 1 of William D. McElroy, chancellor of the University of California at San Diego, into the presidency of the AAAS. Being of no possible consequence, this event would normally have gone unnoted by the national press. But New Year's Day generally offers up limited fare for the news industry, and the *New York Times* chose to help fill the gap with an interview with the new president.

Under "Head of Science Group Seeking to Broaden Its Sphere," the *Times* article reported McElroy as saying that post-World War II government support of university-based research had driven a "wedge" between industry and academic science, to the detriment of "a free flow of ideas and knowledge between the universities and the industrial community."

The article went on to report, "Dr. McElroy would use *Science* magazine to remove that wedge. He is pushing a major expansion of the popular news and comment section to include more articles of interest to 'science users' in industry and the engineering fields, plus increased attention to science and Government policy issues

"Dr. McElroy," the *Times* continued, "hopes to see more 'straight reporting' and 'less opinion' in the news and comment section.

"There are other places in *Science* magazine for opinions," he said, "but in the news and comment section, we need more objectivity and to present all points

of view. If we report on the negative aspects of nuclear energy, for example, we should report on the other side in the same issue of the magazine."

McElroy was also reported as saying that "through appealing to scientists in industry and engineering, he hopes to increase the circulation of *Science* from 115,000 to more than 400,000."

To accomplish this, the *Times* added, McElroy had raised as a "talking point" the possibility of stopping "publication of pure research papers (particularly in biology) in *Science* magazine, [since] 'He feels that more specialized scientific journals handle that function more efficiently.'"

Another point raised by the new president was a proposal for the AAAS, in addition to its annual convention, to sponsor "a second meeting, held annually in Washington, and appealing principally to science policy legislators and administrators in the Executive and Congressional branches of Government."

"I'd hope we might even see the President attend such a meeting," McElroy was quoted as saying.

Since AAAS headquarters normally suggests a museum rendition of a modern office at work, SGR sped into action upon receiving reports of consternation in the organization's executive suites. A telephone call to McElroy elicited the comment that he had not seen the *Times* interview. But, upon being told of its content, he offered no correction. He added that "cessation of pure research papers is up for discussion," though he did not say with whom. He insisted that the news and comment section should make a sharp distinction between news and comment, but did not want to get drawn into specific cases. As for expanding the membership, McElroy said, "We should reach out to get new members from the engineering and business communities."

Now, before proceeding on to other matters, it is to be noted that McElroy's association with the news and comment section of *Science* has not been confined to mere readership. In July 1969, when McElroy concluded 23 years as a biochemist at Johns Hopkins and was sworn in for what turned out to be a three-year term as director of the National Science Foundation, the news and comment section reported that he was in ill odor among some of his scientific colleagues on a fairly serious matter: an allegation of scientific plagiarism (*Science*, 25 July 1969).

The incident, which occurred in 1964, involved a 46-page chapter that McElroy contributed to a multi-volume *Physiology of Insecta*. Upon publication, it was noted by specialists in the field that substantial portions of that chapter bore a striking resemblance

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... But Return of Siesta Just One Year Away

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to a 37-page paper that a researcher, David S. Smith, had published the previous year in the *Journal of Cell Biology*. According to the news and comment account, written by Philip M. Boffey, "A comparison of the two articles reveals that more than 20 per cent of the text of McElroy's chapter consists of material that was either taken verbatim from Smith's article or else was closely paraphrased from the wording used by Smith. The material appears entirely in four subsections of McElroy's chapter dealing with the physiology of light emission, and it comprises more than 80 per cent of the text in those four subsections. In all, McElroy uses more than 25 per cent of the text in Smith's original article."

The news and comment article went on to report that "In general McElroy seems to give Smith credit for Smith's original work, but he does not indicate that he has used Smith's words to describe the work of others and to delineate the existing state of knowledge in the field."

In response to an inquiry, the article continued, "McElroy said he had inadvertently used the material without full attribution through an oversight which he later corrected."

"It was a real foulup," he said, "It was an honest mistake and I readily admit it."

The article added that McElroy was widely recognized

for his scientific achievements and that many of his colleagues accepted his explanation.

In any case, let it be noted that the new AAAS president has been reported on in the columns of the *Science* section that he now says is flawed by a failure to distinguish between news and comment.

Let us now turn to McElroy's "talking point" concerning the banishment of pure research from *Science*. Since the publication of pure research is what *Science* is justifiably renowned for worldwide, the suggestion is a matter of interest to Philip H. Abelson, who in 14 years as editor of the journal, has seen a like number of AAAS presidents come and go. Abelson, who is of olympic caliber in organizational politics (he not only is fulltime editor of *Science*, but also is fulltime president of the scientifically elite Carnegie Institution of Washington) chose to be cryptic in discussing the proposed disfiguration of his esteemed publication.

"My reading of the matter," Abelson told SGR, "is that he (McElroy) had the interview six weeks ago. It doesn't reflect some later discussions," of which Abelson would say no more.

He pointed out, however, that *Science* is the main attraction for AAAS membership; that advertising in *Science* accounts for a substantial portion of AAAS

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Ramo Proposes Free-Wheeling Study Role for Academy

Simon Ramo, the TRW executive who has become one of the Ford Administration's top science advisers, has a plan to encourage the National Academy of Sciences (NAS) to select problems for study rather than wait for them to be formulated and submitted by federal agencies. The plan, he told SGR in a telephone interview, is simply to award the NAS contracts to scout out and state what it considers to be problems that merit serious examination.

Ramo chairs one of two White House advisory groups that were set up to do preparatory work for the new White House science office (SGR Vol. V, No. 22). He discussed his plans for the Academy several weeks after NAS President Philip Handler told the advisory groups that the Academy's 112-year old charter obliges it to accept intact the questions submitted by government agencies. As a result, Handler complained, the Academy—which is chartered by Congress as a scientific and technical adviser to the federal government—often finds itself addressing problems that it considers improperly formulated. As an example, he cited the Academy's assignment to determine whether the auto industry could meet the emission standards of the Clean Air

Act. It would have been more useful, he suggested, to study the merits of the standards.

Handler said that he regards the NAS charter as "precious" and would oppose any amendment to give the organization authority to dicker over the questions submitted by its government clients. His preference, he said, would be for a federal endowment whose income would give the NAS independence to select problems on its own. It was generally agreed, however, that a minimally useful sum would be \$100 million—and that's not likely to be had these days for an organization that painstakingly describes itself as "private."

Ramo's alternative would employ occasional contracts of perhaps a few million dollars each, under which "We'd be asking the Academy, 'What do you think are the questions?'" The charter would remain unchanged and since the sums are relatively small, the contracts are not likely to stir much, if any, curiosity in Congress.

The virtue of the plan is its simplicity. If it is adopted, an interesting chapter may be opened in the Academy's relations with the federal government.

Academy Head Denies Snubbing Soviet Dissidents

A small item in the current issue of the newsletter of the Federation of American Scientists (FAS) has evidently touched a raw nerve in the National Academy of Sciences, prompting a very angry letter from Academy President Philip Handler to FAS Chairman Philip Morrison.

The offending item listed three complaints from Soviet scientists, alleging that some Academy officials have failed to take up cudgels in behalf of fellow researchers in the USSR who have been fired from their jobs after applying for exit visas or speaking out in defense of human rights. The complaints were included in a long diary written by FAS Director Jeremy J. Stone, relating details of his recent visit to the Soviet Union to investigate harassment of Soviet scientists.

The matter has prompted a vigorous reaction from Handler because he claims that the complaints are badly distorted, and he suggests that they could jeopardize the Academy's ability to work behind the scenes to secure relief for individual Soviet scientists.

In a conversation with SGR, Handler also accused Stone of "yellow journalism" by failing to check the accuracy of the statements with him before printing them. (Stone says, however, that he called Howard Lewis, the Academy's chief information officer, to offer Handler the right of reply in the same issue of the newsletter. He says that Lewis told him to go directly to Handler, but

that he dropped the matter because he felt it was Lewis' job to look after such requests).

Underlying the dispute between Handler and Stone is a serious question of whether or not public protests or behind-the-scenes representations from the Academy are more effective in bringing pressure to bear on Soviet authorities.

The complaint which seems particularly to have upset the Academy concerns a 1973 visit by Handler and some other Academy officials to Moscow, at the invitation of the Soviet Academy of Sciences. According to Stone, Soviet scientists complained that Benjamin Levich, a distinguished Soviet electrochemist who had been refused a visa to emigrate to Israel and fired from his job, had been told to expect a call from Handler, but Handler did not call him. Stone then states in his FAS report that Levich called Handler directly. "Handler 'hemmed and hawed' and said that he did not feel that he could meet with Levich since he was an official representative," Stone relates, and adds that Handler's wife later "called to smooth over the situation but without effect."

Handler's description of the event, however, is very different from Stone's account. He told SGR that he was invited to Moscow by the USSR Academy of Sciences for a two-week visit, during which arrangements had been made for a meeting with the entire Presidium of the Soviet Academy, President Podgorny and other top Soviet officials, and he made representations to them in behalf of Soviet scientists, particularly Levich.

He said that he took with him a letter from the president of the American Electrochemical Society notifying Levich that he had been awarded the Palladium medal, and inviting him to the United States to deliver a lecture. Handler said that he tried to present the letter to officials of the Soviet Academy, asking them to deliver it to Levich. Academician Keldysh, the President of the Soviet Academy, refused to accept the letter, Handler said, and accused Handler and the American Electrochemical Society of "playing politics" by awarding the medal to Levich.

Handler also noted that he and other Academy officials had entered into a lengthy discussion with Keldysh and other members of a Soviet delegation to the United States about nine months previously, during which the US Academy vigorously protested the imposition of hefty taxes on scientists and other intellectuals who applied for exit visas from the Soviet Union.

As for the phone call from Levich, Handler says that he never intended to call the Soviet scientist, and suggested that "Whoever told Levich to expect a call ac-

AAAS (Continued from Page 5)

revenues, and that advertisers are attracted by the fact that "working scientists read *Science*." They do this, he said, because *Science* publishes fundamental research papers.

McElroy's proposal to increase membership to 400,000 must be viewed against a 1971 AAAS Board edict to raise membership to one million by 1980. At the time of that heroic decision, membership totaled 133,364; at present, it is 116,446. (All members receive *Science*, but, in addition, non-member subscribers bring the current circulation of the journal to 143,296).

As for the proposed second annual meeting, that surely must be producing peptic twitches in the upper echelons of the Association. With membership down and costs up, the AAAS, despite increases in membership fees, has been experiencing the financial difficulties that are plaguing almost all scholarly organizations. Big meetings, with their high costs and uncertain attendance, are not looked upon at headquarters as an attractive venture at this time.

Despite the consternation caused by McElroy's interview, the private consensus at the AAAS is that the problem will pass. It can persist no longer than four board meetings and one year. Siesta may then resume.—DSG

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Kennedy Backs Down on White House Science Bill

When last reported on here (Vol. V, No. 22), Administration-backed legislation to create a White House Office of Science and Technology Policy had passed the House but was being resisted by Senator Kennedy, who felt the measure was a minimal sop to the scientific community, rather than an effective return of science advice to the White House.

The Senator does indeed still feel the same about the matter, but during the holiday recess, the Administration heated up the issue by quietly depicting Kennedy as the sole impediment to the widely accepted goal of re-establishing the office that Nixon abolished. The irony of the matter is that Kennedy has long been in the forefront of the restoration advocates. But following meetings among assorted Senate and Administration aides, Kennedy backed down a bit on provisions that he had originally deemed essential. The prospects now are that the

three Senate committees sharing jurisdiction over the bill will report it out by the end of this month, and that Ford will have a bill to sign a few weeks after that.

One of Kennedy's key concessions was an agreement to drop a provision that the OSTP director should also hold membership on the National Security Council. Though not yet in final language, the new version makes him an adviser to the NSC. It was agreed, however, to retain Kennedy's provision to make the director a member of the Domestic Council.

The Senate-Administration conference agreed that the OSTP should publish an annual report, but rather than make direct recommendations for spending on science and technology, it will state its conclusions about the "optimal" uses that can be made of science and technology at various levels of financial support.

As the creation of the OSTP becomes more certain, Simon Ramo, vice chairman of the board of TRW, is still considered to be the most likely candidate to head the office. The Kennedy people are in bad humor about being pressured into supporting a bill for which they do not care. Some of them are now talking about the delicate issue of how far the Senate ought to go in insisting that Ramo divest himself of his considerable personal holdings.

HANDLER (Continued from Page 6)

ted irresponsibly."

Handler said that Levich in fact called him at his hotel about an hour after he arrived in Moscow and invited him to Levich's house. Handler said he refused because such a visit would blunt the impact of Handler's representations to Keldysh and Podgorny on Levich's behalf. Levich's wife called back later and talked with Handler's wife. Handler said those were the only calls to get through the hotel switchboard during his two-week stay.

Handler was so upset by the story in the FAS newsletter that he wrote an eight-page letter to FAS Chairman Philip Morrison setting out his version of the event, and demanding an apology. Morrison replied with a milder letter suggesting that FAS would gladly publicize the Academy's efforts in behalf of Soviet scientists in its newsletter, and there the matter will probably rest.

At the bottom of the dispute, however, is the question of how the Academy can best use its influence to secure human rights for Soviet scientists. In September 1973, the Academy sent a telegram to Keldysh warning that further harassment of Andrei Sakharov would jeopardize scientific cooperation between the United States and the Soviet Union. Though the protest may have helped to prevent more serious reprisals against Sakharov, the harassment has continued. As one Academy official noted last week, scientific cooperation does not seem to have suffered, so the threat has been diluted. "It doesn't make sense to keep issuing empty threats," he suggested.

But the Academy's behind-the-scenes approaches have not had much effect in securing help for other Soviet scientists either.—CN

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Praise and a Few Suggestions for RANN Program

After a two-year investigation of the management and planning of NSF's program of Research Applied to National Needs (RANN), the Congressional General Accounting Office (GAO) has concluded that the program is generally well run and that the NSF officials in charge of it are competent. Nevertheless, GAO has faulted the program on a number of points, and its recently published report is sure to provide ammunition for NSF's critics in Congress.

The RANN program has never been accepted by the scientific community with completely open arms, chiefly because it represents NSF's most visible excursion into applied research. It was feared, for example, that the rapid expansion of the RANN program (from \$34 million in 1971 to \$83 million in 1975) would be to the detriment of NSF's support of basic research, and consequently, it has come in for a good deal of scrutiny and criticism in the past few years.

The GAO investigation, which was requested in September 1973 by Senator Kennedy does not address the question of balance between basic and applied research in NSF's activities; it concentrates on the management of the RANN program and attempts to determine whether or not it is meeting its stated objective of supporting research projects likely to be socially useful.

The report faults the RANN program on three chief grounds. First, it suggests that insufficient attention is paid to ensuring that the results of RANN projects are used. Second, it argues that the procedures for determining potential objectives and projects within the RANN program are too informal.

And, third, it sets out a number of complaints from grant applicants about the peer-review process used to evaluate the scientific merit of research proposals (see Page 3).

As for utilization of RANN research results, the GAO report states that in six individual projects which were examined in depth, "there was a general lack of thorough utilization planning." It added that "there appeared to be little initial planning to identify potential barriers to implementation... (and) elements of utilization planning were often scattered throughout the proposals, making it difficult to determine the scope of planned utilization activities."

The report suggests, however, that NSF officials have recently been paying more regard to utilization studies, but it also recommends that no RANN project should be funded unless it contains an adequate plan for ensuring that the results are utilized, with early involvement of potential users in the research planning.

As for the quality of NSF staff members running the RANN program, the GAO report suggests that they are "highly qualified," and that they "have made a continuous effort to develop research efforts responsive to national needs." Nevertheless, the report suggests that NSF should first look for staff from within the Civil Service before recruiting from outside the government.

(Copies of the report, "Opportunities for Improved Management of the Research Applied to National Needs Program," No. MWD-75-84, are available from GAO, Washington DC 20548, \$1.)

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